

# A brief analysis regarding NFTs and digital artworks

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## Abstract

Since the Covid-19 pandemic, the growth of blockchain users is undeniable, as well as the need to look for alternatives to regular transactional markets. Digital tokens, as cryptocurrencies and non-fungible tokens (“NFTs”) arose as an option for facilitating non-physical trades, without intermediaries and with security guaranteed by blockchain systems. One of the biggest growths seen so far is on the field of digital art, where artists found a safe space to trade their arts in the form of NFTs, as well as controlling their sales and distribution. However, the hype of NFT grew as fast as its misinformation. Therefore, as a response to the NFT craze and the misinformation about the copyrightability of NFT transformed artworks, this article argues the necessity to discriminate between the different types of NFTs themselves, as a way to analyse the copyrightability of the non-fungible tokens. In addition, it analyses how these two types of NFTs might affect third parties’ rights, especially addressing the unauthorized minting of an artwork.

## Keywords <sup>1</sup>

Distributed ledger technologies; Blockchain; smart contracts; NFT; Non-fungible Tokens; Intellectual Property; Copyright

## 1. Introduction

In 1917, the artist Marcel Duchamp shocked the art world with his work called “Fountain”, i.e., a sculpture consisting only of an upside-down urinal with a signature. At that time, it was debated whether the aforementioned work could be considered an artistic work or not, after all, instead of making new paintings or sculptures, Duchamp chose to assign a new meaning to an existing object – in this case, the urinal. Nowadays, there is no question regarding Duchamp’s geniality, who is considered one of the greatest references of 20st-century art, even being considered one of the precursors of Dadaism.

More than a hundred years later, one of Hollywood's greatest film directors, Quentin Tarantino, announced the sale of "NFTs" of the award-winning film Pulp Fiction, containing never-before-seen footage with audio and commentary by the director himself. [1] In the same year, the NFT of the “Nyan Cat” meme sold for approximately \$600,000, [2] and the American artist known as Beeple made the biggest NFT sale seen to date: the painting “Every Day: The First 5,000 Days” for 70 million dollars.[3] This new artistic modality - still questioned by many-, just in 2021, was responsible for the trading of more than 23 billion dollars.[4] But such technology is not new and is not even restricted to the art world. NFTs emerged at least 8 years ago as means of making it accessible to buy and sell assets without an intermediary, and to this day, many confuse NFTs with the famous Bitcoin and Ether cryptocurrencies. However, unlike these, the NFT has a unique feature that allowed its rapid rise in the asset market: its non-fungibility. The very name “non-fungible token” leaves no doubt: they are irreplaceable, unique digital assets and even come with a bonus: they are easily tradable.

In this sense, NFT makes it possible to recreate the scarcity of a product that, in reality, is accessible to everyone for free. In the case of the “Nyan Cat” meme, the creator of the NFT just embedded a digital signature on top of the image and, while millions of users may have access to the same work, only one

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will be unique, signed, and stored in a public digital record, which can be accessed and verified by anyone, a.k.a. blockchain.[5]

And it was following this logic that the international model Emily Ratajkowski sold her first NFT. The fashionist, in an attempt to regain autonomy over her own image, decided to create an NFT of a photo of her next to a painting by the famous artist Richard Prince. The painting created by Prince comprised of a print screen of one photo posted on Emily Ratajkowski's Instagram profile, where the model appeared half-naked for the cover of a sports magazine. While criticizing the referred artist for using her image for profit, Emily bought the painting took a picture of herself in front of it, and transformed it into an NFT.[6] In the end, Emily Ratajkowski auctioned the above-mentioned NFT and sold it for approximately US\$140,000, justifying the sale of the digital asset as a way to “buy her image back”.

This recent case jump-started the discussion about copyright protection. Had Emily, in fact, regained ownership of her image? Could Richard Prince sue Emily for the unauthorized sale of his painting? Does the NFT buyer now own Emily's frame and photo? The ease of commercialization and creation of NFTs combined with the availability and accessibility of digital works create a dichotomous environment. If, on the one hand, NFTs are tools that allow establishing the original authorship of a meme – without restricting its use and/or dissemination, on the other hand, it becomes very clear that this technology also facilitates fraud and copyright infringement.

The reason why such dichotomy exists stems from a very delicate issue that has always been present in the digital art world: the difficulty in separate the “owner” of a digital artwork from someone that only has a copy of it saved on their computer. On that matter, NFT might sound like a solution, since it gives the parties a certificate of ownership, verifiable and trustworthy – as it remains on the blockchain.[7]

However, the possibility of transforming (or minting) a digital artwork into an NFT may cause confusion about what NFT actually represents. Some believe that, when buying an NFT, they are buying the work to which it refers to, others understand that the NFT works like an autographed copy of the work. Others argue that NFTs are merely a certificate of authenticity.[8] This clarification can have a major impact on the structure of NFT creation, transactions, market and liability issues regarding copyright law.

Furthermore, transforming an artwork into an NFT might still infringe third parties' rights. When using another artist's artwork to create an NFT without their permission, a copyright infringement could be visible, though the explanation may vary when looking at different legal systems.

In this sense, this paper aims to briefly analyze the challenges of copyright regulation in the face of digital works sold as NFTs. For better understanding, this study will be divided into two parts. The first will aim to provide the reader with a basic notion of NFTs, Blockchain and Smart Contract, in order to successfully assess the relationship between NFTs and their underlying works. Once the nature of this relation is established, the second part will be dedicated to analyzing the applicability of copyright laws to NFTs, from its creation until the sale, meanwhile taking specifically into consideration whether any of those actions could infringe third parties' rights.

## **2. Basic notion of Non-fungible tokens**

Before one can understand the process of transforming an artwork into an NFT – and, subsequently, the copyrightability of such asset – it is imperative to understand how this technology works. In this sense, NFTs can be defined as digital units of information registered and stored into a blockchain.[9]

As hard as this definition might sound to someone who is not an expert in this field, we can observe three main aspects of NFTs: (i) non-fungibility; (ii) token; (iii) registered and stored in the blockchain. Starting by sections, the non-fungibility is a term used to describe something that is not capable of mutual substitution, or, in other words, is not interchangeable. A ten-dollar bill, for example, is fungible, which means that it can be replaced by another ten-dollar bill, or two five-dollar bills, without losing its value. On the other hand, the same is not true for the painting Mona Lisa. It is impossible to replace Mona Lisa with another equal because it is unique. And its uniqueness makes it also indivisible in smaller parts

The same logic can be applied to tokens, which can be also divisible in two categories: fungible and non-fungible[10]. The former type comprehends the most popular tokens of this era, the cryptocurrencies such as bitcoin and ether[11], essentially functioning as standard coins in which all the currency is equivalent and indistinguishable[12]. The latter, on the other hand, are the NFTs, which are also a competitive token - much like bitcoin, but it creates also a sense of uniqueness. In other words, NFTs gets non-fungibility by creating a unique digital asset that is as tradeable as a physical object[13].

This process of digitally representing an existing physical (or virtual) asset on a distributed ledger (blockchain) is called “tokenization”. [14] And, tokens, as the name might imply, are the product of tokenization and they represent a digital unit of information in form of computer code, which can represent any asset. [15] Therefore, while existing on distributed ledgers, they carry the rights of the assets that were used to create it, acting as a store of value. [14] And any kind of token is stored in the blockchain in the form of smart-contracts[11], which will be further explored in the next section.

The last aspect, but not least, it is that NFTs are registered and stored on a public distributed ledger. As we will see in more details below, the fact that NFTs are publicly verifiable makes it trustworthy and this is essential for the existence of non-fungible tokens – or, in reality, any other native token[16].

## **2.1. Related technologies: Blockchain and Smart contracts**

So far, we acknowledge the basic characteristics of an NFT, however, in order to fully comprehend the debate regarding its copyrightability, or more specifically, the way NFTs create a digital uniqueness, it is necessary to have a deeper understanding of the technologies and technicalities behind NFTs, mainly blockchain and smart-contracts.

### **2.1.1. Blockchain**

The knowledge regarding distributed ledger technologies goes far beyond the scope of this paper. Trying to explain the complexity of blockchain and smart contracts would require a rather extensive collection of books. Therefore, in the present study I will focus primarily on establishing the main elements of these related technologies that are relevant to understanding the debate around NFT copyrightability.

The very fair concept of blockchain can be summarized as a cryptographic decentralized and distributed ledger technology (DLT), in which transactions records are public, permanently stored, and immutable. [17] In more simple terms, blockchain enable its users to record transactions in a shared ledger within their community, where no transaction can be changed or tampered with once it is published. [13] The ledger is basically structured by transaction batches – known as “blocks”, that are linked to each other, forming a chain, hence the name “blockchain”. [18]

This DLT primary goal was to reduce transaction costs by enabling users to make direct transactions without the need for a trusted third party (e.g., banks or other financial institutions)[19]. The trust placed on these intermediaries is replaced with the trust in the blockchain system[15], which stems from the following four main features of DLTs: First of all, by being a database, it stores the full history of a transaction, but unlike traditional databases, values and transactions are not overridden. Secondly, it is secure, because of its cryptographic technology that ensures the authenticity of all information contained in the database. Each transaction on the blockchain becomes a block cryptographically linked to the previous block after validation. At third, by being a shared a ledger, the blockchain provides transparency. And, finally, by being a distributed ledger, where the data is not stored centrally, it creates a more resilient environment to any tampering[19]. It is possible to say that, from a theoretical perspective, blockchain is trusted for its correctness, but it is not private, since it displays its internal state to every user[17].

The first generation of blockchain was developed by Satoshi Nakamoto, a pseudonym of an anonymous developer, who was responsible for a paper explaining peer-to-peer electronic cash system. [20] The paper’s described a decentralized system with no issuing authority that would function at the same time as means of exchange and anonymous and fully open record of all transactions. [21] This currency its known nowadays as bitcoin, which is, in fact, as a special purpose program running on the blockchain. [17] The program allows individuals to exchange tokens of value within each other

in a safe and secure way, unbound to intermediaries.[22] But this self-regulating, self-sustained, and transparent trust-machine has one function only: transfer of value.[17]

The second generation of DLTs, however, changed the blockchain scenario – especially in the field of copyright. For instance, in 2013 the Ethereum blockchain (Ethereum) was proposed as a way to promote more than just transfer of value[17], but also to store transactions of different types of tokens, such as domain names, ownership deeds, public records, bank accounts and, NFTs. Ethereum blockchain also has its own currency, which is called Ether[13] but, additionally, this new type of blockchain is able to store self-executable software, in which its code makes the data stored on the blockchain act autonomously if certain conditions are met.[22] Such programmable protocols (or codes) that are self-enforced upon some triggering conditions are what we call smart contracts. [23]

### **2.1.2. Smart contracts**

As we have seen, blockchain is a decentralized system with no central authority, and it can be used in different sectors with several applications[24]. By being so, blockchain allow far more complex operation process than just unilateral virtual money transfers, i.e., any digital asset, data, or information can be implanted in a blockchain to, subsequently, be traded. This is also true for physical properties, as long as they are digitally represented and securely registered into the blockchain[23] by the method of tokenization. In addition, any relationship between these assets is programmable and executable by means of the software in the blockchain – or, as they are usually known - the smart-contracts.[23]

Ultimately, smart contracts are just a contractual agreement that is implemented on the blockchain by using software, but instead of being enforced by legal means, it is self-enforced (through the software) if specific conditions are met[17]. In practice, the smart contracts act as independent actors by managing those tokenized assets upon its programmed conditions.

It should be noted that smart contracts and tokens are one and the same, and one should not be deceived otherwise. Tokens are written and stored in the blockchain in the form of smart contracts.[25] Bitcoin, for example, is known to be a “native” token, which means that it is built directly on the blockchain (“on-chain”) and remains exclusively on the distributed ledger. [14]NFTs, on the other hand, can exist on-chain and off-chain. The former is when the digital asset is uploaded in its entirety to the blockchain, while the latter is when the asset is stored on a different server and the token contains merely a link to where the original asset can be found[26].

## **2.2. What the NFT?**

However, as there are different types of tokens, there are also different types of smart contracts. The model smart contract utilized to create NFTs is the ERC-721.[27] ERC stands for “Ethereum Request for Comments” and is essentially a technical document that represents the defined set of rules required for the implementation of a certain token on the Ethereum[28] ERC-721 is a more refined version of the ERC-20, commonly used to create cryptocurrencies. The latter comprehends information regarding a token such as supply, balance, and how to approve or transfer some quantity of it. The NFT standard smart contract, on the other hand, contains a unique identifier for every token and each transaction made of those type of tokens is based on these identifiers – instead of quantities.[29] Technically speaking, this is what gives NFTs its non-fungibility, their singular identifier that creates the idea of uniqueness.[30]

This might be the reason why NFTs are so popular among digital artists. By tokenizing their artworks, they become digital assets on the blockchain, which can be traded just like a token.[31] Although the distribution right is still not out of the woods yet, NFTs makes the ownership of a unique artwork possible, referable to its author and publicly verifiable on the blockchain.[32]

However, a distinction should be made between the purchase of a physical or digital work versus the purchase of a tokenized version of them. When someone buys a painting from an art gallery, they own that work and enjoy certain rights related to that painting, such as selling it, donating it, put it on display for their delight for example.[15] But tokenized versions of works are another completely different field.

At first, buying NFTs of an artwork might sound just like buying any other digital painting, since not only digital art can be tokenized, but also a physical painting[33]. In fact, many sales of NFTs are advertised with a promise similar to those of physical objects, in which by owning the NFT, the person will also own the asset and the seller will have no more control over them.[34, 35] However, non-fungible tokens have neither carried this same premise[13], nor should a purchase of NFTs be treated as of physical objects.

In order to make that distinction clear, i.e. the difference between digital art and the tokenized version of it, it is necessary to recall the standard smart contract used to create NFTs: the ERC-721. In this template, there are two mandatory elements that must be present in any NFT created, the first being the tokenID and the second, the contract address.[36] The tokenID is a form of social security number of the token, and it is generated upon its creation, while the contract address is the indicator of the exact location of the token on the blockchain.[37] The uniqueness of NFTs, i.e., their non-fungibility, derives exclusively from the combination of those two elements: tokenID and contract address.[28] There is no need for the digital art itself to be present on the token for it to become an NFT. In reality, most of the times the digital art is not stored on the blockchain.[29]

As explained before, some tokens can exist only on the blockchain (e.g., bitcoin[38]), while others can exist on and off-chain. The latter is the case of NFTs[39], which are usually off-chain for one simple reason: the prohibitive costs for storage.[40] For instance, to upload 1GB of a digital art on the Ethereum can cost up to US\$35 million[41].

Therefore, most of the NFTs nowadays use a hyperlink to connect the NFT with the digital art that was used to create it.[42] Being off-chain means that the token only keeps record of an external URL address that points to where the artwork is stored.[29]

The first step when making an off-chain NFT, is the translation of the asset into a digital language, which is, in essence, transforming any digital (or physical) asset into a computer language capable of being read by and stored on the blockchain[37]. This translation of the artwork to computer language is what we call metadata.[26]

Take the NFT owner CryptoKitties #1790014<sup>2</sup> as an example. The metadata of the said NFT contains the description of his asset (a kitten), such as the character's name, the breed and the color, as well as a URL address for the image corresponding to the kitten. This metadata is then compiled into the ERC-721 contract, which inserts this information into the blockchain, generating the two central elements of an NFT, its identifier number (e.g., tokenID) and the locator address of that token on the blockchain. To illustrate what the NFT actually looks like, see below <sup>3</sup>:

Min. Price	Last Sale
N/A	N/A

  

Details	
Owner:	0x41c93a11f3b688d286e4ff5159d9667fc3238f76
Token Address:	0x06012c8cf97bead5deae237070f9587f8e7a266d
Creator:	0xba52c75764d6f594735dc735be7f1830cdf58ddf
Original Content URL:	https://img.cryptokitties.c...
Token ID:	1790014
Token Standard:	ERC-721

Figure 1: Details of CryptoKitty #1790014

<sup>2</sup> Panda Scuttlefu, CryptoKitty #1790014, available at: <https://www.cryptokitties.co/kitty/1790014>.

<sup>3</sup> Details of the NFT *CryptoKitty* #1790014, available at: <https://etherscan.io/nft/0x06012c8cf97bead5deae237070f9587f8e7a266d/1790014> Accessed in Jun/2022.

As we can see, the image of the Cryptokitties #1790014 is not stored on the blockchain. The only element that connects the token to the image of the kitten is the URL address, which is what is actually stored on the Ethereum. In other words, the Cryptokitties and the token are bound together by a hyperlink and a metadata directing and describing the artwork, so it proves that the token is related to the art.[26] The NFT only shows that the token and the art have an immutable and unfalsifiable relationship[13].

That is the reason why most scholars[43] argue that NFTs are not the artwork itself, but rather the metadata file that comprehends a unique combination of contract address and tokenID. So far, the doctrine agree[5, 13, 15, 27, 37, 44] that NFTs are much more similar to certificates of authenticity than ownership deeds, since what it does is to state who is the owner of a unique metadata that might point, or not[45], to an asset.

And it is against this backdrop that NFTs enthusiasts' debate whether NFTs can or cannot be subject to copyright protection.

### **3. Tokenization of Intellectual Property: how NFT and copyrights interact**

Ethereum blockchain was a game changer in the digital artworld, by creating scarcity, ensuring authenticity and by improving the attribution to the artist.[32] Without a doubt it severely changed not only, the way society makes transactions, but also our perspective on how to perceive property and ownership. The same is true for intellectual property. Prior to the internet era, intellectual goods, like books, movies and paintings were tied to physical objects. Digitalization proved, nonetheless, that this link was merely incidental, i.e., intellectual property – as braced by the law – is a state of nature.[10] However, this state of nature was never so clear as it is today. Before, it was only assumed that intellectual property was not bound to the existence of the object. Nowadays, with tokenization of assets, intellectual goods might have finally become ubiquitous.[10]

In this sense, new issues have arisen regarding copyright protection. For instance, last year Quentin Tarantino announced the auction of NFTs with scenes and excerpts from the original Pulp Fiction script. Not so long after, the film's production company, Miramax, filed a lawsuit alleging copyright infringement, under the pretext that Tarantino would not own copyright under the sale of the film and script.[1] This legal dispute brought to light the debate concerning the application of copyright to NFT technology, and spiked the curiosity of scholars[46, 47]: is Tarantino infringing on copyright because his NFTs would be considered an unauthorized sale of a copy of the Pulp Fiction script? Could NFT be considered as a digital artwork distinct from the script itself? Does the mere creation of an NFT constitute copyright infringement? This chapter will be dedicated to answer those questions and a few more, focusing specifically in copyright issues.

#### **3.1. Copyrightability of NFTs**

The first step should be the assessment of whether NFTs are subjected to copyright protection. In order to do we should begin by understanding what copyright law is meant to protect and if NFTs fit into their scope of protection.

##### **3.1.1. Different answers for different copyright systems?**

Before the 19th century, copyright legislation was an unharmonized matter at the international level, when a work published in the UK, for example, would be protected by copyright law in Britain but nothing could stop it from being copied or sold to anyone in France. In fact, it was only in the 18th century that society recognized copyright for the first time, by virtue of the act of Queen Anne of England - Statute of Anne, which granted the author the exclusive right to print the work. [48]At the same time, in Europe, the French legislative system was being fostered by the recent French Revolution and was marked mainly by the formation of national copyright laws with cultural influence directly or

indirectly from France.[49] The French system, *Droit d'Auteur*, maintained exclusivity in sales between booksellers, but, in an unprecedented way, recognized authors the right to edit and sell their works.[50]

There was, then, the formation of two main poles with regard to the structure of copyright: the French (*Droit d'Auteur*) and the English (Copyright). The Copyright doctrine, with its origins in England, places a greater focus on the protection of the reproduction, distribution, exhibition, performance, and even transformation of a work, which literally translates into “copyright”. The author's moral rights are secondary prerogatives. While in the *Droit d'Auteur* doctrine, there is equal protection of property and moral rights. In summary, the Copyright system is guided by the principle of investment protection, while *Droit d'Auteur* prioritizes the author and his creation[51].

For instance, according to the US copyright framework (17 U.S. Code § 102 (a) ), for it to be protected a work must have originality, creativity and fixation[52], i.e., the works must be an original creation, have a minimum of creativity and be fixed in a tangible medium.[53] On the other hand, for most of EU countries, which follow the French doctrine, besides tangibility, it is required that the work represents a creation of the human spirit [53]. It is important to notice, however, that although those requirements are not exactly the same[54], both systems of copyright protection are very similar and they agree that, for something to be considered a work protected by copyright, it should convey some form of originality by the author.

Nevertheless, we have to consider that for different copyright systems we might get different interpretations and, therefore, different answers for any copyright issue arising from NFTs trades or creations.

From this perspective, there is a minority opinion[53, 55] stating that NFTs might be considered as artworks under the US copyright law. Regarding originality, perhaps, an artist, by storing on the blockchain a contract representation of their painting in the form of metadata, is behaving just like Marcel Duchamp when submitted to the exhibition the famous signed urinal.[15] This requirement is very subjective and only further analysis by the US Court could provide a clear answer. With regard to the fixation requirement, blockchain could be considered as a “tangible medium of expression”[53], since the US 9th Circuit already decided that even a RAM (e.g., computer hardware) that stores a software could be considered as a tangible medium.<sup>4</sup>

However, it is the majority position from the doctrine (from both copyright systems) that NFTs are not copyrightable *per se*[13, 15, 27, 37, 42, 44, 45, 47, 56], because the token itself is not the creative work that carries the original form of expression of the author.[57] Understanding the technicalities of NFT is essential for reaching that conclusion: whereas a smart contract is used to generate a hash of the work, and then is used to create a non-fungible token, which is intrinsically linked to the original work[58], whatever is being traded in the form of NFT, literary works, paintings or Cryptokitties, already exists, besides being linked or not in the NFT.[42]

In sum, the underlying work might be copyrightable, but not the token. Which opens the discussion, what does the buyer own when purchasing an NFT?

### **3.1.2. Who owns what: the underlying asset, ownership and copyright**

For the analysis in this section, we have to assume that the underlying work of an NFT is subject to copyright protection. A real-life example is the case of Emily Ratajkowski NFT: the model and actress took a picture of herself in front of Richard Prince's piece, which was a print-screen of Emily's photo on her Instagram feed, and tokenized it into an NFT.

As we established, the NFT itself does not have any copyright. However, the picture taken by the model, especially with the scenario she chose, might be subject to copyright protection. From this point, there are two main questions that need to be answered.

Firstly, is it correct to say that when buying Emily's NFT, the person is also acquiring the physical photograph she took? As stated on the previous section, it is a misconception to think that purchasing an NFT gives the acquirer ownership of the underlying work[33], since NFTs are just tokens that says that a certain copy is yours.[59] But in the end, still just a token. In some cases, the buyer might also

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<sup>4</sup> The US 9<sup>th</sup> Circuit already decided that even a RAM (hardware) storing a software could be considered as a tangible medium. See *MAI Systems Corp v. Peak Computer, Inc.* Available at: <https://casetext.com/case/mai-systems-corp-v-peak-computer-inc>

get a copy of the digital file, depending on whether on the terms of the purchase so dictate or not.[43] For example, one of the most famous NFTs, the Bored Apes Yacht Club, states clearly on their Terms & Conditions “[w]hen you purchase an NFT, you own the underlying Bored Ape, the Art, completely.”<sup>5</sup>

Understanding this factor is very important for the second question: when purchasing an NFT, who owns the copyright of the underlying work? Thinking intuitively, when someone buys a physical artwork, such as Emily’s photograph used for the creation of the NFT, it does not mean that the copyrights of the photo was also “bought”.<sup>[44]</sup> Similarly, when one purchases an NFT, they do not acquire the copyright to the underlying work<sup>[15]</sup>. The importance here is: when buying the actual photograph, the new owner has the right to display it.<sup>[15]</sup> However, by buying the NFT of the photograph, the mere displaying of the photograph can be an infringement, since the purchase of the NFT, as we have seen by the answer of the first question, does not automatically include the purchase of the underlying work. At best, what is acquired when purchasing an NFT is the right to display the media related to the token on their token wallet, for personal delight only.<sup>[60]</sup>

Nevertheless, we should bear in mind that NFTs are, in essence, programmable smart-contracts. Therefore, smart contracts can function as any other normal contract does, with the possibility of negotiation between the contracting parties<sup>[27]</sup>, within the scope permitted by mandatory statutory provisions<sup>6</sup>. In other words, the NFT creator could grant certain rights to the acquirer of the token, just by adapting the smart contract. For instance, the French musician known as Jacques released a song called “Vous” and for each second of the song, he created one NFT.<sup>7</sup> Fans could buy each token and, while the NFT does not represent the transfer of rights itself, with the purchase, they would also acquire a right to the song, a few merchandises and also a signed visual contract of the actual transfer of rights.<sup>[37]</sup>

Bringing the discussion back to the case of Emily Ratajkowski photograph, it is possible to affirm that, in the absence of any specific provision, the acquisition of an NFT does not grant the new owner the copyright of the underlying work, therefore, the buyer of Emily Ratajkowski’s NFT would not own the copyright of her work (e.g., her photo).

After everything, another issue might surface. The underlying work can still be distributed and the purchase of an NFT does not grant the owner any rights capable of preventing further use of the linked work, including the right to make another NFT from the exact same asset.<sup>[15]</sup>

### **3.1.3. No investment is safe: NFTs are not limited by the principle of exhaustion**

One of the major innovations brought by NFTs was the ability to create scarcity in the digital world.<sup>[7]</sup> Ultimately, the tokenization of digital works makes perfect sense: in the case of physically created works of art, while there is always an original that can be distinguished from the reproduction at any time, the same is not true in the digital world. Before NFTs, there was not a counterpart in the virtual space in the sense of “digital original”. In reality, digital artworks are basically reproducible and the copies will always resemble the original.<sup>[61]</sup>

Technically speaking, NFTs are unique and scarce because they contain a unique combination of tokenID and contract address that cannot be replicated. NFTs own nature is being non-fungible.<sup>[30]</sup> Therefore, attaching a token that cannot be replicated to a digital artwork could make the future of digital art come closer to the physical art.<sup>[15]</sup> However, as we know, selling a token does not mean selling the work linked to it, thus, different NFTs can be created using the same underlying work.<sup>[62]</sup> Given this scenario, one might think interesting to bring into NFT world some traditional tools of copyright, that could possibly grant the buyer some protection or, at least, some control of the circulation of the work used to create the NFT.

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<sup>5</sup> See Bored Apes Yacht Club Terms & Conditions available at <https://boredapeyachtclub.com/#/terms>.

<sup>6</sup> According to US law (17 U.S. Code §204), the transfer of copyright ownership is possible, as long as it is done in writing and is signed by the owner, the same as in the UK. In Europe, the scenario changes. France, for example, allows the assignment of rights only of reproduction and representation – which are qualified as exploitation rights, the moral rights cannot ever be assigned (Art. L122-7, Code de la Propriété Intellectuel). In Germany, on the other hand, the transfer of copyright is not permitted, unless is in the case of death , so instead, it is necessary a licensing agreement. (Sec. 31, Urheberrechtsgesetz ).

<sup>7</sup>Information about the NFTs created by Jacques is available at: <https://www.cointribune.com/en/columns/blockchain-music/own-a-piece-of-jacques-new-single-vous/>



There is a very well-established principle in Europe, as well as the US, regarding the distribution rights, i.e., the exhaustion of such right after the first sale.[57] In the US this principle, a.k.a. first-sale doctrine, is already codified in 17 U.S. Code § 109<sup>8</sup>, while in the EU, it is set in the EU Directive 2001/29/EC<sup>9</sup>, commonly known as InfoSoc Directive. The first-sale doctrine determines that it is legal to resell or dispose of a physical copy of copyrighted works.[59] As a result, the sale of a certain manuscript from a private collection does not require the permission of the author. Digital copies, however, is a different matter.

In the US, for example, the Copyright Office published an opinion in which they affirmed the impossibility of first sale limitation to be applied to digital works, since they are inherently non-fungible[63], and this was confirmed in 2013 by the US 2<sup>nd</sup> Circuit Capitol Records LLC vs. ReDigi Inc <sup>10</sup>, by stating the impossibility of transferring a digital file without necessarily needing to make a copy of it. Therefore, the transfer would mean, ultimately, on-going violate the reproduction right.[63]

The same is true for the EU, after the 2019 CJEU judgment in *Tom Kabinet* <sup>11</sup>. In this case, Dutch publishers' association sued a Dutch company called Tom Kabinet for the launch of an online second-hand e-book shop. The CJEU decided that the exhaustion of the distribution rights applies only to physical goods (subject to exhaustion), whereas to digital works its applied solely the right of communication (not subject to exhaustion).[57] The reasoning behind the decision relied on the fact that e-books do not deteriorate with use, making the copies perfect substitutes for new ones, while the physical second-hand book requires the ability to obtain fair rewards for their effort[64].

To argue that NFTs would also have some sort of digital exhaustion would have already been hard, since it is not the digital work itself. After the judgment of *Tom Kabinet* case, it became impossible.[65] This could have serious impact for NFT buyers, because if the sale of the token does include the underlying digital work, like in the case of BAYC, a court could uphold certain rights of the NFT creator in an event of resale[63], thereby negating the some of the main benefits of non-fungible tokens: making profit by resale.

It becomes evident that, in most of the scenarios above, the buyer of an NFT related to copyright-protected work, will frequently have no legal claim in ownership or right to enforce copyright interests over that content. This is mainly because buying a token is not the same as buying the work or a version of it. Henceforth, there is nothing preventing a NFT creator to make different NFTs based on the same underlying work. This conclusion clearly challenges the idea of scarcity created by NFTs, hence considerably decreasing the value of each token.

### 3.2. NFTs' dark side: the unauthorized tokenization of works

Stating that NFTs are not intellectual property right themselves[42] can also have negative implications: if NFTs do not represent some form of intellectual property right that is sold to the purchaser, then the unauthorized tokenization of a third party's work should not be a copyright infringement issue.[47] This is most certainly important, since there have been already several allegations of unauthorized tokenization of work, such as the Quentin Tarantino NFT case mentioned on the beginning of this paper. Another very recent case, now in Europe (Germany) regarding this matter is the August Sander photographs dispute. Julian Sander made NFTs from the photographs of the famous German photographer August Sander, but it was contested by SK Stiftung Kultur, i.e., German-based non-profit cultural foundation, by claiming that the Foundation owns the copyrights for the photographs, and did not authorize Julian to make the NFTs.[66]

For copyright infringement to occur, one has to violate the exclusive rights assigned to the author.[47] In order to asses this matter, the first step is to determine if minting (tokenizing) an NFT falls under the scope of the exclusive rights of the author. According to US law, the owner of copyright

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<sup>8</sup> 17 U.S. Code § 109 available at: <https://www.law.cornell.edu/uscode/text/17/109>

<sup>9</sup> EU Directive 2001/29 available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32001L0029&qid=1661708527935>

<sup>10</sup> Capitol Records LLC v. ReDigi Inc. case available at: <https://law.justia.com/cases/federal/appellate-courts/ca2/16-2321/16-2321-2018-12-12.html>

<sup>11</sup> Nederlands Uitgeversverbond and Groep Algemene Uitgevers vs. Tom Kabinet Internet BV, available at: <https://curia.europa.eu/juris/liste.jsf?num=C-263/18>

has the exclusive right to reproduce, create derivative works, distribute copies, perform or display a work (17 U.S. Code § 106)<sup>12</sup>. In Europe, it should be observed the same rights, including as well the right of communication to the public (EU Directive 2001/29/EC). From this list, we believe that the rights that are the most relevant for the discussion is the reproduction right and the communication to the public.[37]

From the reproduction perspective, the majority position is that, since the NFT itself is not the work, there is no reproduction here.[15] Therefore, even if the creator of the NFT uses an unauthorized copy of a digital art to create an NFT, the token and the art exist independently. Once the tokenization is completed, i.e., the digital art is transformed into a set of codes and hashes, there is no need for it anymore.[37]

When speaking about communication to the public, however, it is a more complicated matter. At first, we could ask how is the work being communicated to the public. In the case of NFTs, the work being the underlying asset used to create the token, which are usually made available by means of a hyperlink. Then, we go to the following issue: could hyperlinking a work be considered a communication to the public under EU law? In accordance to with art. 3(1) Directive 2001/29/EC, the communication to the public right applies to communication at distance[22] (wire or wireless), as well as to ‘interactive on-demand use’, such as uploading.[22]

Linking a work, however, is not explicitly covered by the Directive, but is a subject have been decided for many years by the CJEU.[15] For instance, the Svensson CJEU decision<sup>13</sup> confirmed that making works available by hyperlinks would not be a communication to the public, since, in this specific case, the work was already shared by the rightsholder to the public.[37] Nevertheless, it seems to be the standard position of the CJEU<sup>14</sup>[67] that the posting of hyperlinks of protected works without the authorization of the copyright owner meet the legal requirements for communication to the public, thus, triggering the application of the InfoSoc Directive.[27]

Therefore, it is possible that, by minting an NFT from a digital work without the authorization from the copyright owner be a matter of copyright infringement – if, and this is the key – there is a hyperlink pointing to the work. As we seen before, the only mandatory elements on non-fungible tokens are tokenID and contract address. The hyperlink may or may not be present on the tokens metadata. Taking back to August Sander’s NFT case, we know that Julian, when making the tokens, chose to add a hyperlink with a copy to each photograph that one NFT was made from. The links are available to the public, and anyone can access it. Therefore, if the copyrights for the photographs truly belongs to the Foundation, the hyperlinking to the photos can be considered as a communication to the public of an unauthorized copies of a work (in this case, the photos), thus, posing as a copyright infringement.[68]

### 3.2.1. The first court decision is from china

Last year, we had the first judgment of a copyright infringement case of NFTs, specifically addressing the matter of violation of copyrights by the unauthorized tokenization of third parties’ work.[69] The case was about the contributory liability of a NFT marketplace platform (Bigverse’s NFTCN) for selling an NFT made from a work without the authorization of the copyright holder. The company (QiCeDieChu Culture Creativity Co Ltd.) was the copyright holder of the underlying work, which was tokenized without its authorization.

Although the case was mainly about liability of marketplace platforms, the Hangzhou Internet Court specifically addressed two interesting points. First, it confirmed that a sale of an NFT its not equal to transfer or even licensing of Intellectual property. Secondly, it noted that a party that mints an NFT should bear the rights of the underlying work – and not just merely a copy of it.[70]

This decision can be considered a landmark, since it confirms what the doctrine has been debating over NFTs and copyright. However, the Court is at district level and we should await to see if decision is going to be upheld by a higher Court.

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<sup>12</sup> 17 U.S. Code § 106, available at: <https://www.law.cornell.edu/uscode/text/17/106>

<sup>13</sup> Nils Svensson vs. Retriever Sverige AB, available at: <https://curia.europa.eu/juris/liste.jsf?num=C-466/12>

<sup>14</sup> See GS Media BV vs. Sanoma Media Netherlands BV, available at: <https://curia.europa.eu/juris/liste.jsf?num=C-160/15>; BestWater International GmbH vs. Michael Mebes and Stefan Potsch, available at <https://curia.europa.eu/juris/liste.jsf?num=C-348/13>;

### 3.2.2. The ‘copyfraud’ issue

Another issue that might arise, is the copyfraud or, in other words, the minting of an NFT from a work in public domain, falsely claiming to own the copyright of it.[33] Currently, there are almost 10.000 NFTs of Leonardo Da Vinci’s painting Mona Lisa<sup>15</sup>. Furthermore, an entity called Global Art Museum stated a business for tokenization of public domain works, including from a digital collection of public domain works at Rijksmuseum in Amsterdam.[37]

This case can be assessed from two different perspectives: the first one being that there can be no violation of copyright in this case, since public domain works can be used without any infringement.<sup>16</sup> However, from a second point of view, if the Global Art Museum had claimed – on their NFT – the ownership of the works from Rijksmuseum, they would have been liable for infringing the moral rights of the author[33].

## 4. Conclusion

Although we cannot say that the popularity of NFTs will continue to grow, it is certain that this new technology, at least in the artistic world, is here to stay. It is also indisputable that the NFTs have taken the artistic environment to other dimensions – in addition to art galleries or movie theaters, today it is possible to access true exhibitions entirely filled with digital works.

However, like all technological developments, non-fungible tokens have definitely had an impact on intellectual property, especially with regard to copyright. The biggest question that we sought to explore in this article is how the classification of intellectual works linked to NFTs could be tackled by the law. That is, if such works fall within the scope of copyright protection and, how this classification might impact NFT transactions and third parties’ right.

For now, we have to settle with the idea that Quentin Tarantino might not be able to sell his NFT after all, or that maybe NFTs are just a new mean of human expression (although, very unlikely) and Beeple will be considered the Marcel Duchamp of this time. Only time will tell how these issues will be resolved and whether existing rules will suffice.

## 5. References

- [1] Raustiala K, Sprigman C. Guest Column: Tarantino vs. Miramax — Behind the NFT ‘Pulp Fiction’ Case, and Who Holds the Advantage. *The Hollywood Reporter*, <https://www.hollywoodreporter.com/business/digital/tarantino-miramax-pulp-fiction-nft-1235052378/> (2021, accessed 1 January 2022).
- [2] Griffith E. Why an Animated Flying Cat With a Pop-Tart Body Sold for Almost \$600,000. *The New York Times*, 2021, <https://www.nytimes.com/2021/02/22/business/nft-nba-top-shot-crypto.html> (2021, accessed 1 January 2022).
- [3] Kastrenakes J. Beeple sold an NFT for \$69 million. *The Verge*, <https://www.theverge.com/2021/3/11/22325054/beeple-christies-nft-sale-cost-everydays-69-million> (2021, accessed 1 January 2022).
- [4] Bambysheva N. NFT Market Generated Over \$23 Billion In Trading Volume In 2021. *Forbes*, <https://www.forbes.com/sites/ninabambysheva/2021/12/23/nfts-generated-over-23-billion-in-trading-volume-in-2021/?sh=2d4a4dc45f0a> (2021, accessed 1 January 2022).
- [5] Lemos R. Impacto de NFT é maior do que se pensa. *Folha de São Paulo*, <https://itsrio.org/pt/artigos/impacto-de-nft-e-maior-do-que-se-pensa/> (2021, accessed 1 January 2022).

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<sup>15</sup> Mona Lisa search at OpenSea platform in 30 Aug. 2022, results available at: [https://opensea.io/assets?search\[resultModel\]=ASSETS&search\[chains\]\[0\]=ETHEREUM&search\[query\]=mona%20lisa&search\[categories\]\[0\]=art](https://opensea.io/assets?search[resultModel]=ASSETS&search[chains][0]=ETHEREUM&search[query]=mona%20lisa&search[categories][0]=art)

<sup>16</sup> Ibid.

- [6] Ordoña M. This picture of Emily Ratajkowski is free to look at. But its NFT sold for \$140,000. *Los Angeles Times*, <https://www.latimes.com/entertainment-arts/story/2021-05-17/emily-ratajkowski-nft-sells-for-140000> (2021).
- [7] Kaczynski S, Kominers SD. How NFTs Create Value. *Harvard Business Review*, <https://hbr.org/2021/11/how-nfts-create-value> (2021, accessed 1 January 2022).
- [8] Burroughs SA. NFTs And Copyright: What You See Is Not What You Get. *Above the Law*, <https://abovethelaw.com/2022/02/nfts-and-copyright-what-you-see-is-not-what-you-get/> (2022, accessed 1 January 2022).
- [9] Chohan UW. Non-Fungible Tokens: Blockchains, Scarcity, and Value. *papers.ssrn.com*, <https://ssrn.com/abstract=3822743> (2021, accessed 1 January 2021).
- [10] Glatz F. A Blockchain Token Taxonomy. *Medium*, <https://heckerhut.medium.com/a-blockchain-token-taxonomy-fadf5c56139a> (2016).
- [11] Pinto-Gutiérrez C, Gaitán S, Jaramillo D, et al. The NFT Hype: What Draws Attention to Non-Fungible Tokens? *Mathematics* 2022; 10: 335.
- [12] Wang Q, Li R, Wang Q, et al. Non-Fungible Token (NFT): Overview, Evaluation, Opportunities and Challenges. *ArXiv210507447 Cs*; 3, <https://arxiv.org/abs/2105.07447> (2021).
- [13] Fairfield J. Tokenized: The Law of Non-Fungible Tokens and Unique Digital Property. *papers.ssrn.com*, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3821102](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3821102) (2021).
- [14] OECD. *The Tokenisation of Assets and Potential Implications for Financial Markets*. OECD Blockchain Policy Series, <https://www.oecd.org/finance/The-Tokenisation-of-Assets-and-Potential-Implications-for-Financial-Markets.pdf> (2020).
- [15] Çağlayan Aksoy P, Özkan Üner Z. NFTs and copyright: challenges and opportunities. *J Intellect Prop Law Pract* 2021; 16: 1115–1126.
- [16] Narayanan A, Bonneau J, Felten E, et al. *Bitcoin and Cryptocurrency Technologies Introduction to the book*, <https://pdfdirectory.com/pdf/0765-bitcoin-and-cryptocurrency-technologies.pdf> (2016).
- [17] Shyamasundar RK, Patil VT. Blockchain: Revolution in TRUST. *Proc Indian Natl Sci Acad*; 96. Epub ahead of print 2018. DOI: 10.16943/ptinsa/2018/49340.
- [18] Klint Finley, Barber G. What Is Blockchain? The Complete WIRED Guide. *Wired*, <https://www.wired.com/story/guide-blockchain/> (2019, accessed 1 January 2022).
- [19] Yaga D, Mell P, Roby N, et al. Blockchain technology overview. *Natl Inst Stand Technol*. Epub ahead of print 2018. DOI: 10.6028/nist.ir.8202.
- [20] Nakamoto S. *Bitcoin: a Peer-to-Peer Electronic Cash System*, <https://bitcoin.org/bitcoin.pdf> (2008).
- [21] Guadamuz A, Marsden C. Blockchains and Bitcoin: Regulatory Responses to Cryptocurrencies. *papers.ssrn.com*, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2704852](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2704852) (2015).
- [22] Bodó B, Gervais D, Quintais JP. Blockchain and smart contracts: the missing link in copyright licensing? *Int J Law Inf Technol* 2018; 26: 311–336.
- [23] Cuccuru P. Beyond bitcoin: an early overview on smart contracts. *Int J Law Inf Technol* 2017; 25: 179–195.
- [24] Belotti M, Bozic N, Pujolle G, et al. A Vademecum on Blockchain Technologies: When, Which, and How. *IEEE Commun Surv Tutor* 2019; 21: 3796–3838.
- [25] Moringiello JM, Odinet CK. The Property Law of Tokens. *papers.ssrn.com*, <https://ssrn.com/abstract=3928901> (2021, accessed 1 January 2022).
- [26] Finzer D. The Non-Fungible Token Bible: Everything you need to know about NFTs. *OpenSea Blog*, [https://opensea.io/blog/guides/non-fungible-tokens/#History\\_of\\_non-fungible\\_tokens\\_2017\\_2020](https://opensea.io/blog/guides/non-fungible-tokens/#History_of_non-fungible_tokens_2017_2020) (2020, accessed 1 January 2022).
- [27] Bodó B, Giannopoulou A, Quintais J, et al. The Rise of NFTs: These Aren't the Droids You're Looking For. *papers.ssrn.com*, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4000423](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4000423) (2022, accessed 1 January 2022).
- [28] Ethereum Org. ERC-721 Non-Fungible Token Standard. *ethereum.org*, <https://ethereum.org/en/developers/docs/standards/tokens/erc-721/>.
- [29] Malik N, Yanhao Wei M, Appel G, et al. Blockchain Technology for Creative Industry: Current State and Research Opportunities. *Int J Res Mark*. Epub ahead of print 2022. DOI: 10.1016/j.ijresmar.2022.07.004.

- [30] Rafli DPAD. NFT Become a Copyright Solution. *J Digit Law Policy* 2022; 1: 43–52.
- [31] Hines Z. The weird, wild and expensive world of blockchain art. *Engadget*, <https://www.engadget.com/2018-08-30-cryptokitties-gods-unchained-blockchain-art.html> (2018, accessed 1 January 2022).
- [32] Bookout J, Cimbol L, Collins SL, et al. A Brief Introduction to Digital Art & Blockchain. *Cardozo Arts Entertain Law J* 2019; 37: 553.
- [33] Lewis L, Owen J, Fraser H, et al. Non-fungible tokens (NFTs) and copyright law. *Bird & Bird*, <https://www.twobirds.com/en/news/articles/2021/australia/non-fungible-tokens-nfts-and-copyright-law> (2021).
- [34] Harper J. Jack Dorsey’s first ever tweet sells for \$2.9m. *BBC News*, 2021, <https://www.bbc.com/news/business-56492358> (2021).
- [35] Damiani J. Beeples’ ‘The First 5000 Days’ Sold To Metakovan, Founder Of Metapurse, For \$69,346,250. *Forbes*, <https://www.forbes.com/sites/jessedamiani/2021/03/12/beeples-the-first-5000-days-sold-to-metakovan-founder-of-metapurse-for-69346250/?sh=1f1354354de4> (2021, accessed 1 January 2022).
- [36] Guadamuz A. Copyfraud and copyright infringement in NFTs. *TechnoLlama*, <https://www.technollama.co.uk/copyfraud-and-copyright-infringement-in-nfts> (2021, accessed 1 January 2022).
- [37] Guadamuz A. The Treachery of Images: Non-fungible Tokens and Copyright. *papers.ssrn.com*, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3905452](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3905452) (2021, accessed 1 January 2022).
- [38] Evans TM. Cryptokitties, Cryptography, and Copyright. *AIPLA Q J* 2019; 47: 219.
- [39] Grimmelmann J. The tangled truth about NFTs and copyright. *The Verge*, <https://www.theverge.com/23139793/nft-crypto-copyright-ownership-primer-cornell-ic3#cjV2An> (2022, accessed 1 January 2022).
- [40] Moskov A. What is NFT Metadata & How Does It Work? *Pastel*, <https://pastel.network/what-exactly-is-nft-metadata/> (2021, accessed 1 January 2022).
- [41] NFTs Explained: NFT Crypto Marketplaces and NFT Art. *Gemini*, <https://www.gemini.com/cryptopedia/what-is-a-non-fungible-token-nft-crypto> (2021, accessed 1 January 2022).
- [42] Okonkwo IE. NFT, copyright and intellectual property commercialization. *Int J Law Inf Technol* 2021; 29: 296–304.
- [43] Klein FK, Goldman SP-J. A Primer on NFTs and Intellectual Property. *Lexology*, <https://www.lexology.com/library/detail.aspx?g=d96ed012-8789-4e87-bc1d-70ba76569c0f> (2021, accessed 1 January 2022).
- [44] Lapatoura I. [Guest post] Copyright & NFTs of Digital Artworks. *The IPKat*, <https://ipkitten.blogspot.com/2021/03/guest-post-copyright-nfts-of-digital.html> (2021, accessed 1 January 2022).
- [45] Giannopoulou A. The Rise of Non-Fungible Tokens (NFTs) and the Role of Copyright Law – Part I. *Kluwer Copyright Blog*, <http://copyrightblog.kluweriplaw.com/2021/04/14/the-rise-of-non-fungible-tokens-nfts-and-the-role-of-copyright-law-part-i/> (2021).
- [46] Chaudri A. NFTs and copyright infringement: Miramax v Tarantino. *Inside Tech Law*, <https://www.insidetechl.com/blog/nfts-and-copyright-infringement-miramax-v-tarantino> (2021, accessed 1 January 2022).
- [47] Greenbaum D. Irrational NFT exuberance requires new IP law | Ctech. *calscalistech.com*, <https://webcache.googleusercontent.com/search?q=cache:WvKUjMB-LoIJ:https://www.calcalistech.com/ctech/articles/0> (2021).
- [48] Hammes BJ. *Curso de direito autoral*. Universidade Federal do Rio Grande do Sul, Editora da Universidade, 1984.
- [49] Fragoso JH da R. *Direito de autor e copyright: fundamentos históricos e sociológicos*. Editora Quartier Latin do Brasil, 2012.
- [50] Abrão EY. *Direitos de autor e direitos conexos*. Editora do Brasil, 2002.
- [51] Pimenta E. *Princípios de direitos autorais: um século de proteção autoral no Brasil 1898-1998. Livro I*. Editora Lumen Juris, 2011.
- [52] Dooley Y. Guides: Copyright Quick Reference Guide: Copyright Law Basics. [guides.library.unt.edu](https://guides.library.unt.edu),

- <https://guides.library.unt.edu/SCCopyright/basics#:~:text=The%20three%20basic%20elements%20of%20copyright%3A%20originality%2C%20creativity%2C%20and%20fixation.> (accessed 1 January 2022).
- [53] Sheehy C. A New Frontier: NFTs and Copyright Law. *American University Intellectual Property Brief*, <http://www.ipbrief.net/2022/03/17/a-new-frontier-nfts-and-copyright-law/> (2022, accessed 1 January 2022).
- [54] Saudreau M. Copyright et droit d’auteur: quelle différence? *www.justifit.fr*, [https://www.justifit.fr/b/guides/droit-propriete-intellectuelle/differences-droit-d-auteur-et-copyright/#Quelles\\_sont\\_les\\_conditions\\_dapplication\\_du\\_droit\\_dauteur](https://www.justifit.fr/b/guides/droit-propriete-intellectuelle/differences-droit-d-auteur-et-copyright/#Quelles_sont_les_conditions_dapplication_du_droit_dauteur) (2021, accessed 1 January 2022).
- [55] Chinlund GJ, Gordon KS, Chinlund GJ, et al. What are the copyright implications of NFTs? *Reuters*, 2021, <https://www.reuters.com/legal/transactional/what-are-copyright-implications-nfts-2021-10-29/> (2021, accessed 1 January 2022).
- [56] Jordan H. No, NFTs aren’t copyrights. *TechCrunch*, <https://tcrn.ch/3pYkLh4> (2021, accessed 1 January 2022).
- [57] Berto L. Are you exhausted with NFTs already? *4iP Council*, <https://www.4ipcouncil.com/research/are-you-exhausted-nfts-already> (2022, accessed 1 January 2022).
- [58] Guadamuz A. What do you buy when you buy an NFT? *TechnoLlama*, <https://www.technollama.co.uk/what-do-you-buy-when-you-buy-an-nft> (2021).
- [59] Sullivan S. “NFTs: Future or Fad?” Excerpts From A Practical Discussion of NFT Use Cases and Copyright Concerns Raised by NFT Offerings. *Columbia J Law Arts*; 45. Epub ahead of print 2022. DOI: 10.52214/jla.v45i3.10011.
- [60] Mahmood G. NFTs: What Are You Buying and What Do You Actually Own? *The Fashion Law*, <https://www.thefashionlaw.com/nfts-what-are-you-buying-and-what-do-you-actually-own/> (2021).
- [61] Kaulartz M, Schmid A. Rechtliche Herausforderungen sog. Non-Fungible Token (NFTs). *CMS Deutschland bloggt Aktuelle Rechtsthemen und was eine Großkanzlei sonst bewegt*, <https://www.cmshs-bloggt.de/tmc/rechtliche-herausforderungen-sog-non-fungible-token-nfts/> (2021).
- [62] Guadamuz A. Creative Commons, commercial use, and NFTs. *TechnoLlama*, <https://www.technollama.co.uk/creative-commons-commercial-use-and-nfts> (2021, accessed 1 January 2022).
- [63] Fisher K. Once upon a Time in NFT: Blockchain, Copyright, and the Right of First Sale Doctrine. *Cardozo Arts Entertain Law J* 2019; 37: 629.
- [64] Angelopoulos C. THE DIGITAL EXHAUSTION OF COPYRIGHT. *Camb Law J* 2020; 79: 227–230.
- [65] Mezei P, Quintais JP, Giannopoulou A. The Rise of Non-Fungible Tokens (NFTs) and the Role of Copyright Law – Part II. *Kluwer Copyright Blog*, <http://copyrightblog.kluweriplaw.com/2021/04/22/the-rise-of-non-fungible-tokens-nfts-and-the-role-of-copyright-law-part-ii/> (2021, accessed 1 January 2022).
- [66] Adcock BH-R, Mellor S, Fitzpatrick S. Boodle Hatfield’s May NFT Litigation Roundup: An injunction is granted to prevent the sale of a Bored Ape Yacht Club NFT, and more... *Lexology*, <https://www.lexology.com/library/detail.aspx?g=a3738646-0886-4c8b-8e1e-4d261b53fb09> (2022, accessed 1 January 2022).
- [67] Quintais JP. Untangling the hyperlinking web: In search of the online right of communication to the public. *J World Intellect Prop* 2018; 21: 385–420.
- [68] Andre DR. Five things you should know about China’s NFT market. *Allen Overy*, <https://www.allenoverly.com/en-gb/global/news-and-insights/publications/five-things-you-should-know-about-chinas-nft-market> (2022, accessed 1 January 2022).
- [69] Pessarlay W. Chinese court makes first public ruling involving NFTs. *CoinGeek*, <https://coingeek.com/chinese-court-makes-first-public-ruling-involving-nfts/> (2022, accessed 1 January 2022).

[70] TFL. Chinese Court Issues 'Landmark' Ruling in Case Over Infringing NFTs. *The Fashion Law*, <https://www.thefashionlaw.com/chinese-court-issues-landmark-ruling-in-case-over-infringing-nfts/> (2022, accessed 1 January 2022).